CLAIMS

1. A fiber array for optical communication, comprising: a substrate for inserting optical fibers therein; and a press plate for pressing and fixing the inserted optical fibers, said substrate having a plurality of grooves into which said optical fibers are to be inserted, the accuracy of the center-to-center dimension between said grooves adjacent to each other being within ± 0.5 μm, the degree of parallelization in the groove length direction between said grooves adjacent to each other being within ± 0.1 degree.

2. The fiber array for optical communication according to claim 1, wherein said grooves have a U-shaped or V-shaped section.

3. The fiber array for optical communication according to claim 1, wherein said grooves have a semicircular section, and said press plate also have grooves with a semicircular section located at positions respectively corresponding to the grooves in said substrate.

4. The fiber array for optical communication according to any one of claims 1 to 3, wherein said substrate and a substrate of said press plate are formed of a material selected from the group consisting of glass composed mainly of silicon oxide, glass ceramic, quartz glass, light-transparent alumina, and zirconium oxide.

5. A method for manufacturing the fiber array for optical communication according to any one of claims 1 to 4, said method comprising the steps of:

forming grooves into which said optical fibers are inserted in said substrate by pulsed laser beam machining;

inserting optical fibers into the formed grooves; and

joining and fixing said inserted optical fibers to said substrate and said press plate.

6. The method according to claim 5, wherein said pulsed laser beam is a femtosecond laser beam.

7. The method according to claim 5 or 6, which further comprises the step of etching the inner wall of said formed grooves after said laser beam machining.

8. The method according to claim 7, wherein said etching is carried out with at least one inorganic acid selected from the group consisting of hydrofluoric acid, hydrochloric acid, nitric acid, and sulfuric acid.